

REC-117

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TECH CENTER 1001/2000

Sub E3  
D2  
cut  
1  
4. (Amended) Substrate as claimed in claim 3,  
wherein said substrate has a polar radical at terminal.

5. (Amended) Substrate as claimed in claim 4,  
wherein said polar radical is hydroxyl radical, carboxyl  
radical, epoxy radical or amino radical.

Sub E3  
D3  
12. (Amended) A method for amplifying DNA for a  
substrate or chip, comprising the following steps:

(a) chemically modifying the substrate or chip to  
provide a polar radical on the surface of the substrate or  
chip;

(b) cleaning the chemically modified substrate or  
chip with TE buffer solution;

(c) dipping the chemically modified and cleaned  
substrate or chip in a solution containing a primer with  
respect to amplifying target DNA, four kinds of nucleotide and  
DNA polymerize;

(d) holding the temperature of said solution at 95°C  
for about 1.5 minutes;

(e) holding the temperature of said solution at 45°C  
for about a minute;

(f) holding the temperature of said solution at 74°C  
for about 2 minutes; and

(g) repeating the steps (d)-(f).

Rewrite claims 13-15 in amended form as follows:

*Sub 13*  
13. (Amended) A solid state substrate having DNA immobilized thereon, wherein said substrate is diamond and is chemically modified.

*D4*  
*Sub 14*  
14. (Amended) Substrate having DNA immobilized thereon as claimed in claim 13, wherein said substrate has a polar radical at terminal.

15. (Amended) Substrate having DNA immobilized thereon as claimed in claim 14, wherein said polar radical is hydroxyl radical, carboxyl radical, epoxy radical or amino radical.

In place of now cancelled claims 17-20, add the following new claims:

*Sub 22*  
--22. (New) Substrate having DNA immobilized thereon as claimed in claim 15, wherein said carboxyl radical is connected on a surface of said substrate through an ester linkage.

*D5*  
--23. (New) Substrate having DNA immobilized thereon as claimed in claim 15, wherein said carboxyl radical is connected on a surface of said substrate through an amide linkage.

DS  
wt  
--24. (New) Substrate having DNA immobilized thereon as claimed in claim 15, wherein said carboxyl radical is connected to a surface of said substrate with a silane coupling agent, a titanium coupling agent or an aluminum coupling agent.

--25. (New) Substrate having DNA immobilized thereon as claimed in claim 15, wherein said epoxy radical or amino radical is connected to a surface of said substrate with a silane coupling agent, a titanium coupling agent or an aluminum coupling agent.

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ADDITIONAL REMARKS

Applicants continue to rely primarily on their reply filed March 20, 2001. However, after further consideration, and in deference to the Examiner's views and to avoid or minimize needless argument, it has been decided to introduce the cosmetic amendments helpfully suggested by the Examiner at numbered page 3 of Paper No. 7. The amendments are of a formal nature only, i.e. made to place the claims in better form consistent with U.S. practice. These amendments are not "narrowing" amendments; no limitations have been added and none are intended.

Claim 12 has been amended to recite the steps. Claims 13-15 have been amended to specify that the substrate has DNA immobilized thereon, and new claims 22-25 have been added, dependent on claim 15, and paralleling claims 6-10. These claims are all patentable for the reasons set forth in the remarks of the reply filed March 20, 2001. In reviewing